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1 RECORD OF ORAL HEARING
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3 UNITED STATES PATENT AND TRADEMARK OFFICE
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6 BEFORE THE BOARD OF PATENT APPEALS
7 AND INTERFERENCES
8

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10 *Ex Parte* BYUNG-SUN CHOI
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13 Appeal 2009-003211
14 Application 10/608,411
15 Technology Center 2600
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18 Oral Hearing Held: September 22, 2009
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21 Before ROBERT E. NAPPI, MARC S. HOFF, and THOMAS S. HAHN,
22 *Administrative Patent Judges*.
23

24 ON BEHALF OF THE APPELLANT:
25

26 S. STUART LEE, ESQUIRE
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32 The above-entitled matter came on for hearing Tuesday, September
33 15, 2009, commencing at 9:10 a.m., at the U.S. Patent and Trademark
34 Office, 600 Dulany Street, Alexandria, Virginia, before Cynthia Sydnor-
35 Thomas, Notary Public.

1 JUDGE NAPPI: Twenty minutes. You may begin whenever.

2 MR. LEE: Thank you. May it please the Board, my name is Seok-
3 Won Stuart Lee. I'm here on behalf of the Appellant Samsung Electronics
4 Company, Limited, for Application Serial No. 10/608,411.

5 Before I go into the arguments, I'd like to provide a little roadmap of
6 what I'd like to explain. First, I'd like to explain briefly the technology
7 involved and also the technology of the inventors and explain how Tajime,
8 the reference cited by the Examiner, fails to teach, disclose or suggest the
9 invention as claimed and also explain how the Examiner's proffered
10 motivation to combine is unsupportable.

11 As, you know, we all know, motion video is actually a series of still
12 images. You have a series of still images that are displayed in sequence that
13 provides an illusion of a motion video, and in order to store such a series of
14 still images into electronic form, you can possibly store every single picture
15 and every single -- the data in every single pixel of every still image or every
16 picture, but that would take up an inordinate amount of space, or it would be
17 unwieldy. It would be very large, you know, say 100 megabytes. And there
18 are a lot of technologies out there to encode the sequence of pictures so that
19 you have a smaller size, and what you would do is on -- for every picture
20 you would encode it into using various techniques, and as a result, you have
21 the video in a format that's of a more manageable size, let's say, for example,
22 10 megabytes instead of 100 megabytes.

23 And what the Inventor's technology involves is called transcoding. So
24 even though you have a video that's let's say 10 megabytes, that may still be
25 too large. You may want to have it in a smaller format. That is, you may
26 want it to be a smaller size like 1 megabyte, and what you do is called

1 transcoding. And what that entails is you take the encoded video, and you
2 decode it so you reconstruct the still images, the still pictures, more or less.
3 You might have some losses. But -- and with the reconstructed pictures you
4 would re-encode those pictures using different parameters or perhaps using
5 different encoding methodology, so you have a much smaller picture. And
6 what has been done, what's conventional, is to, you know, if you have a
7 series of pictures. Let's say you're encoding one particular picture. What
8 has been done in the past is to look at the remaining pictures and use some
9 information from the remaining pictures to encode, to set the parameters to
10 encode the current picture. And specifically what is involved is complexity.
11 You would look at the complexity of the subsequent pictures to determine
12 how you want to encode the current picture.

13 Now what the Inventors have come up with is this novel idea of when
14 you're encoding this current picture, you would look at the complexity of the
15 previous picture that was encoded, and specifically what's involved is
16 looking at the complexity of the unencoded previous picture and the
17 complexity of the decoded previous picture. Those two complexities in
18 conjunction with the complexity of the unencoded current picture are used to
19 come up with a value that's used to control the bit rate or how much memory
20 the current picture would take.

21 And, you know, how does this relate to the specific claim language.
22 Well, if I may direct your attention to Claim 1, Claim 1 relates to a
23 transcoding apparatus. It has several elements, and it has a video decoding
24 unit, complexity estimation unit and a few other units. What I would direct
25 your attention to is the complexity estimation unit as -- which is recited as
26 the complexity estimation unit which estimates complexity of a current

1 picture among the decoded pictures to encode the current picture. And if I
2 may direct your attention to the last paragraph, the wherein clause, that
3 fleshes it out a little bit more. That wherein clause explains that the
4 complexity estimation unit calculates complexity of a picture to be currently
5 encoded using complexity of decoded previous and current pictures, output
6 from the video decoding unit, and complexity of an encoded previous
7 picture output from the video encoding unit.

8 With that, it's the Examiner's position that a reference renders obvious
9 Claim 1. This reference is the Tajime reference, and the Examiner appears
10 to concede that there is no single embodiment in Tajime which discloses or
11 suggests or renders obvious the invention claimed in Claim 1. So the
12 Examiner argues that the combination of what's disclosed in Figure 1 and the
13 combination of the second embodiment shown in Figure 2, that such a
14 combination would render Claim 1 obvious. Well, Appellant respectfully
15 disagrees.

16 Let's look at Figure 1. If I may direct your attention to Figure 1 of
17 Tajime, Tajime, you know, relates to a coding device, and its goals involve
18 reducing processing delay and increasing processing efficiency. And
19 Figure 1 of Tajime, at the bottom left-hand corner you have the input bit
20 stream, and this is where the encoded video is received. And the encoded
21 video is received at the decoding path section 11 which decodes the video.
22 And some of the values pertaining to the input bit stream are input to what's
23 called the complexity measured computer means which is right above the
24 decoding path section. And the Examiner takes the position that the
25 complexity measure computing means discloses the calculation of some of
26 the complexity values that are recited in the Claim. But if you -- if one is to

1 look at Tajime, and one would read that the complexity measure computing
2 means 101 calculates the complexity of a group of pictures and the
3 complexity of all pictures. And so, you know, one might say okay, what
4 does that mean? Does -- are we talking about calculating a number of
5 complexities, and that would be a group, a complexity of a group of
6 pictures?

7 Well, Tajime explains in detail in column 9. There are some
8 equations 1 through 6, and these equations explain in detail how the
9 complexity of the group of pictures and the complexity of the -- of all the
10 pictures are calculated, and by looking at these formulas, one can see that in
11 calculating the complexity of group of pictures it does not calculate, Tajime
12 does not disclose calculating complexity of one of the group of pictures and
13 another of the group of pictures, but rather it takes certain values from all the
14 pictures of the group of pictures, and comes up with a single complexity
15 value that is representative of all the pictures in the group. And furthermore,
16 the calculation of the complexity for all the pictures that's shown in
17 equation 6, that has basically the same formulation as the calculation of the
18 complexity for the group of pictures which is shown in equation 3. And
19 again here what --

20 JUDGE NAPPI: Counsel, may I ask you a quick question here?

21 MR. LEE: Sure.

22 JUDGE NAPPI: How does Tajime determine how many pictures are
23 in a group? Can a group be just one picture? In which case wouldn't
24 Tajime teach calculating the complexity of one image?

25 MR. LEE: I think -- it's my understanding that the group of pictures is
26 more than one picture. The -- if you look -- if one is to look at equations 1

1 and 2, it discloses calculating the sum of certain values. Equation 1 explains
2 that one would add up the -- what's called the quantizer step size cumulative
3 value Q of OJ for a number of macro blocked and --

4 JUDGE NAPPI: But the question is how does it get that higher
5 number of summation? I mean you can write a summation symbol of 1 to J
6 and then turn around and say J is equal to 2, so you got 1 to 2, so you're
7 summing over 1 picture image.

8 MR. LEE: That can be a possibility, but we would submit that there
9 would be no point in having a summation. I think the technology involves
10 video compression and in the context of MPEG technology, and a group of
11 pictures is known by one skilled in the art to refer to more than a single
12 picture.

13 JUDGE NAPPI: Well, I'm looking in column 7 of the reference.

14 MR. LEE: Yes.

15 JUDGE NAPPI: And you know, this was just a quick scan for me to
16 try to find where it was as I was asking a question. I'm looking like in
17 column 7 around line 25, and they seem to indicate that a group may be one
18 picture.

19 MR. LEE: Column 7, line 25?

20 JUDGE NAPPI: Around 25 to 30. Actually, maybe you should start
21 on line 30 to, "Apart from this, as a picture group unit, there are a plurality
22 of picture groups containing one image predicted within a frame or one
23 picture."

24 MR. LEE: I think what that -- as best I understand, I believe what
25 that's discussing is you may have -- you will have a number of pictures, but

1 within each picture you had the same image. I would think that that's what
2 Tajime is disclosing because --

3 JUDGE NAPPI: Kind of like if you had a still image being displayed
4 in video would keep the general --

5 MR. LEE: Right, right. Because it says, "Apart from this, as a picture
6 group unit, there are a plurality of picture groups containing one image
7 predicted within a frame or one picture or pictures in a given time." So I
8 believe that group as used by Tajime and also in view of the equations
9 involves a plurality of pictures.

10 JUDGE HOFF: So in your opinion, picture group complexity
11 measure XT reflects the complexity of --

12 MR. LEE: A group of --

13 JUDGE HOFF: -- the picture group unit referred to here in column 7?

14 MR. LEE: I believe so. It's a reflection of the complexity of the
15 picture group and not the --

16 JUDGE HOFF: I want to be -- the reason I'm being precise is it says,
17 "picture group unit which is made up of a plurality of picture groups."

18 MR. LEE: To be precise, it appears that the picture group unit may be
19 comprised of multiple -- a plurality of groups within one group unit.

20 So Tajime admittedly disclosed calculating some of a complexity
21 value, but it is not complexity value of a single picture, and even looking at
22 the equations, even trying to factor out a number of values that would reflect
23 a complexity of a single picture from equation 306 that's -- I don't think the
24 Examiner has shown how these complexity -- this complexity value would
25 reflect the complexity of a single picture nor has -- have we been able to

1 determine how one would be able to say that this complexity value includes
2 the complexity of a single picture.

3 And Figure 2 is essentially -- is in many ways similar to what's in
4 Figure 1 in that in Figure 2 you have the encoded image that's received by a
5 decoding path section, that's received by another compensation section, and
6 then the coding path section, it outputs certain values regarding the re-
7 encoded pictures that's received by the again complexity measure computing
8 means 101 which again calculates the complexity of a group of pictures and
9 a complexity of all the pictures. And therefore, the combination of Figure 1
10 and 2 cannot possibly disclose or suggest the complexities -- complexity
11 values recited in the Claim.

12 And furthermore, we would submit that there's no motivation to
13 combine. You know, even if the teachings of Figure 1 and Figure 2 in two
14 separate embodiments can be combined, the Examiner provides certain
15 motivation to combine these two embodiments. The Examiner mentions
16 shortening of processing delay, improvement of picture quality and
17 improvement of encoding efficiency. But if one were to combine these two
18 embodiments, then you would end up increasing -- actually doubling the
19 number of calculations that would be required to process the video. You
20 would have to calculate the complexity of two sets of complexity values, one
21 for the video that's been decoded and then taking what's disclosed in
22 Figure 2 you have to -- you would have to calculate the complexity values
23 for another set of pictures, the set of pictures that have been re-encoded. So
24 Appellant is at a loss as to how this motivation is supportable given that the
25 combination of Figures 1 and 2 would in all likelihood increase the
26 processing delay and degrade any encoding efficiency.

1 And furthermore, Applicant would submit that KSR held that a
2 combination of familiar elements according to known methods is likely to be
3 obvious when it does no more than yield predictable results. As submitted
4 by the Appellant, there is no explanation of how the complexity measure
5 computing means 101 would calculate the claimed complexity of a picture to
6 be currently encoded using complexity of decoded previous and current
7 pictures, output of the video decoding unit and complexity of an encoded
8 previous picture, complexity of an encoded previous picture output from the
9 video encoding unit. I think the only predictable result that would come
10 about would be increasing the amount of processing that's required,
11 increasing the delay, and the predictable result that the Examiner is
12 espousing of increased efficiency simply isn't there.

13 As -- in conclusion, Appellant submits that claims of the Application
14 invention as claimed are patentable over Tajime and that the Examiner's
15 motivation to combine the teachings of two separate embodiments of Tajime
16 is not supportable.

17 JUDGE NAPPI: Any questions?

18 JUDGE HOFF: No.

19 JUDGE NAPPI: Any questions?

20 JUDGE HAHN: I would appreciate some discussion regarding using
21 complexity of a decoded previous and current picture, that seems to be
22 multiple pictures, to calculate a complexity for a picture according to the
23 Claim, and Tajime is using multiple pictures to calculate a complexity.
24 Would you address that?

25 MR. LEE: I think that is one possible interpretation, but the Appellant
26 would submit that that the wherein clause also talks about complexity of an

1 encoded previous picture, and that's one aspect that Tajime is deficient on
2 and that Tajime discloses calculating complexity of a group of pictures or all
3 the pictures. The intent of the Applicant with to respect that language that
4 you mentioned is that the complexity estimation unit calculates the
5 complexity of decoded previous picture and the complexity of the decoded
6 current picture.

7 JUDGE HAHN: It does seem to be multiple pictures.

8 MR. LEE: I can only state what the intent of the Applicant and now --
9 but give -- but what Appellant would submit is that in the wherein clause it
10 does talk about complexity of an encoded previous picture.

11 JUDGE HAHN: Thank you.

12 JUDGE NAPPI: Thank you very much, sir.

13 MR. LEE: Thank you, Your Honors.

14 (Whereupon, the proceedings, at 9:30 a.m., were concluded.)